

ABSTRACT OF THE DISCLOSURE

A wavelength converter and a wavelength division-multiplexing optical communication apparatus automatically generate clock signals of a specified frequency that match send/receive digital signals and regenerates timing for the send/receive digital signals. The wavelength converter includes: optical/electrical signal converters (2A, 2B) that convert input optical signals into electric digital signals; clock generator circuits (4A, 4B) that automatically identify the transmission mode for digital signals and generate phase-synchronized clocks of a specified frequency that match the signal transmission mode; timing regeneration circuits (6A, 6B) that regenerate clock timing for said digital signals based upon the phase-synchronized clocks from the clock generator circuits; and electric/optical converters (3A, 3B) that convert the digital signals from said timing regeneration circuits into optical signals of a specified wavelength.